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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/784,302	02/24/2004	Seiichi Yamamoto	103213-00071	2270

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EXAMINER

NGUYEN, HIEP

ART UNIT	PAPER NUMBER
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2816

DATE MAILED: 04/17/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/784,302

Applicant(s)

YAMAMOTO ET AL.

Examiner

Hiep Nguyen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 February 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 3-7 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 3-7 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 February 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08).
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 5 and 6 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Correction and/or clarification is required.

Regarding claim 5, the recitation “and a potential difference appearing between the second electrode and control electrode of the second transistor is substantially equal to a potential difference appearing between the second electrode and control electrode of the third transistor” is indefinite because it is not clear which drawing the circuit of this claim reads on. Assume that the circuit of claim 5 reads on figure 7 of the present application, then there is no clue that the gate-source voltage of transistors M3 and M4 are equal. The Applicant is requested to point out the drawing of the circuit of figure 5.

Claim 6 is indefinite because it is not clear which drawing the circuit of claim 6 reads on. Claim 6 depends on claim 6, if the circuit of claim 5 reads on figure 8 of the present application; the second transistor (T3) and the first transistor (M2) are not the same type of transistors. The Applicant is requested to point out the drawing of the circuit of figure 5.

Claim 7 is indefinite because of the technical deficiencies of claims 5 and 6.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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Claims 3-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fotouhi (USP. 6,624,671) in view of Aota et al. (USP. 6,921,199).

Regarding claim 3, figure 4A of Fotouhi shows a semiconductor integrated circuit comprising:

- a power transistor (M19) that feeds a current to a load;

- a first transistor (M30) of which a second electrode and a control electrode are connected respectively to a second electrode and a control electrode of the power transistor (M19);

- a second transistor (M31) of which one of a first electrode or a second electrode is connected to a first electrode of the first transistor (M30). Transistor (M19) draws a very large current (I_{out}) which is much larger (100 times) than the sense current (I_{sen}) drawn by transistor (M31) (col. 7 lines 1-12). Aota does not show that transistor (M19) is a power transistor. However, it is well known that a circuit having a power transistor can drive a large load. Therefore, it would have been obvious for one having skill in the art to replace transistor (M19) of Fotouhi with a power transistor so that the circuit of figure 4A can drive a heavy load coupled to the output (404).

Figure 4A of Fotouhi includes all the limitations of claim 3, except for the limitation that there is a third transistor coupled to the power transistor (M19) and to the second transistor (M31). It is well known in the art that an op-amp shown in figure 4A basically comprises two input transistors. Figure 4A of Fotouhi does not show the details of the op-amp comprising a third transistor having a gate connected to the first electrode of the power transistor (19) and a second electrode connected to a control electrode of the second transistor (M31). Figures 3 and 4 of Aota shows an op-amp B (M4-M7, M8) comprising a third transistor (M4) having a gate connected receive a first input signal, a second electrode connected to a control electrode of the second transistor (M8) that is equivalent to the second transistor (M31) of Fotouhi. The op-amp of Aota generates an output voltage (T_{vref}) that is independent of the temperature coefficient (col. 5, lines 6-14). Therefore, it would have been obvious to one having ordinary skill in the art the replace the op-amp (406) of Fotouhi with the op-amp B of Aota for generating an output voltage that is independent of the temperature coefficient. Note that the combination of Fotouhi and Aota comprises a semiconductor integrated circuit that comprise

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a third transistor having a gate connected to the first electrode of the power transistor (M19) and a second electrode connected to a control electrode of the second transistor (M31). See attached drawings.

Regarding claims 4 and 7, the combination of Fotouhi and Aota shows that the first electrode (1) of the third transistor (M4) is connected to the second electrode (2) of the power transistor (M19) and the first transistor (M30). Figure 4 of Aota shows that a direct current voltage (Vcc) is applied to the second electrode of the third transistor (M4) through resistor (load resistor M6).

Regarding claim 5, the combination of Fotouhi and Aota shows that the second transistor (PMOS, M8) and third transistors (NMOS, M4) are transistors of opposite polarities and the second and third transistors are considered to be identical, otherwise stated, and to have the same gate-source voltages.

The second transistor (M8) and the first transistor (M30) are all NMOS transistors.

Conclusion


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hiep Nguyen whose telephone number is (571) 272-1752. The examiner can normally be reached on Monday to Friday from 7:30am to 4:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Callahan can be reached on (571) 272-1740. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Hiep Nguyen

04-05-06



TUAN T. LAM
PRIMARY EXAMINER

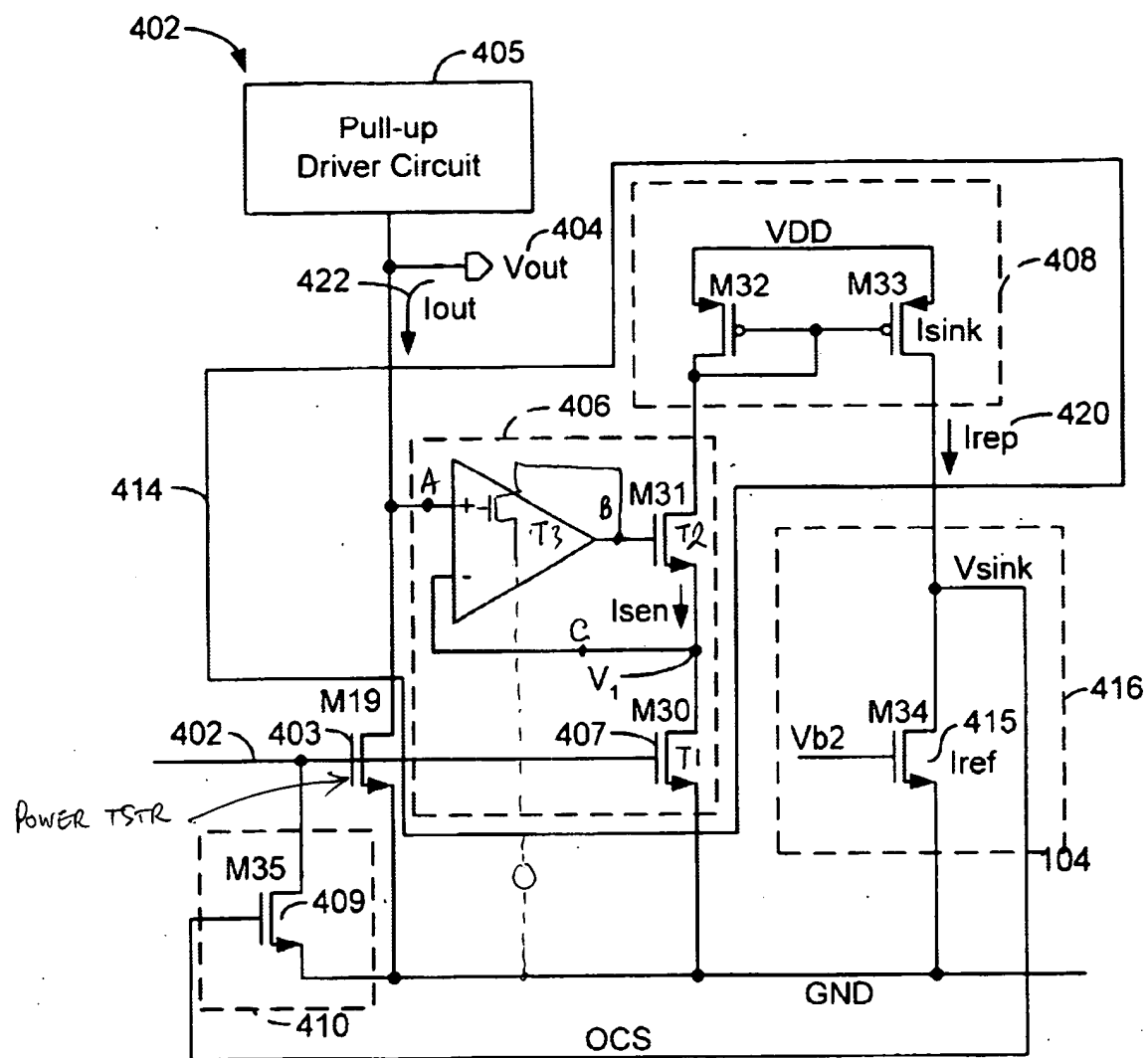


FIG. 4A

FIG. 4

